SURVEY OF TECHNOLOGY IN THE SCHOOLS

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Status Report on Kentucky

MILKEN EXCHANGE ON EDUCATION TECHNOLOGY

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INTRODUCTION

In response to the lack of accurate and timely state-by-state data on school technology, the Milken Exchange on Education Technology undertook a state-by-state survey of technology in the schools during the spring of 1998 (See Appendix A). Those responsible for school technology at the state level also felt that assessments of the status of technology were tied too much to measures of equipment, and did not consider other aspects of technology planning and advancement. Thus, questions were designed to fit into the six dimensions for gauging progress of technology in the schools developed by the Milken Exchange (Learners, Learning Environments, Professional Competency, System Capacity, Community Connections [formerly External Support], Technology Capacity)[1]. These dimensions have been expanded to add "Accountability" since the survey was conducted. However, since each dimension was covered by only a very few survey items, none of the dimensions are measured in great depth. The results do, in our view, give a sense of the progress of technology in each state, and enable us to identify relationships among various measures of the state of school technology.

The Milken Exchange worked with state education technology directors who distributed the questionnaires to the technology coordinators (or similar individuals) in all districts in their respective states and followed up to try to maximize the response rates. Twenty-eight states participated in the survey, and 21 of these achieved response rates of at least 40 percent. Although there were a number of reasons for non-participation, the most frequent one was timing of the Milken Exchange survey vis-à-vis other data collection activities in the state.

We asked the state technology directors in each of the 21 highest responding states to look at the list of responding districts and give us their judgments as to whether these districts comprised a representative sample for their states. Their affirmative responses led us to publish data on the following 21 states.

State	Response rate
Hawaii*	100%
South Carolina	92%
Utah	88%
Wyoming	77%
Missouri**	74%
Delaware	73%
Kentucky	70%
West Virginia	69%
Mississippi	62%
Pennsylvania	62%
Alaska	60%
Maryland	58%
North Carolina	55%
Louisiana	54%
Indiana	53%
Washington	51%
Arkansas	50%
Kansas	48%
Minnesota	43%
Oklahoma	41%
Florida	40%
Overall	**54%**

* Hawaii has only one district.

** Missouri's data are based on a representative sample of districts.

1. Lemke, Cheryl and Edward C. Coughlin. *Technology in American Schools: Seven Dimensions for Gauging Progress*. Santa Monica, CA: Milken Family Foundation, 1998.

How accurately our results represent actual conditions in a state depends upon the accuracy of the data we received. The results that follow are responses of district technology coordinators (DTCs) to questions about their districts and about the schools, teachers, and students located in their districts. Some of the questions require "factual" answers, while others may require opinions or judgments from the DTCs. Obviously, the knowledge and experience of district technology coordinators could vary greatly from district to district. Some DTCs have long histories of involvement with technology, while others may be new to the field; some may spend a great deal of time in the schools, while others do not. Some districts require schools to report on various aspects of their technology situation, while other districts have little formal data upon which to base their answers. Hence, there inevitably will be some variance in the "quality of reporting" among DTCs. Nevertheless, the district technology coordinators are in a very good position to observe, gather data from, and form opinions on the state of technology in the schools in their district.

Implicitly, we are assuming that the DTCs are capable of answering the questions posed in a relatively accurate and unbiased fashion. To the extent that DTCs are not able to do so, we make comparisons across states with the expectation that whatever biases do exist in our data are consistent across states. In the future, when we look at changes over time, our assumptions will be that changes in the data are reflecting real changes rather than changes in the quality of reporting.

We are seeking information at various levels of aggregation—from districts themselves, from schools and from teachers and students. In the first case, the district, there is a single piece of information required, for example, the district either has a technology plan or it does not, and that plan costs a certain amount to implement. Obviously, DTCs can provide reliable data on district measures. But a district may have as many as 600 separate schools, and in them thousands of teachers and tens of thousands of students. Situations may be different for various schools (student to computer ratio), teachers (amounts of technology training received and how they use technology in their classrooms if at all), and students (competency in using technology). In some districts, a single response provided by a district technology coordinator may apply to all or most schools, teachers, or students in her district, while in others, every school, teacher or student (or groups of each) may be very different. In other words, the distribution of situations in various schools, teachers, or students in a district may be tightly centered or widely disbursed around the mean situation. Two districts may report the same student/computer ratio, say 12:1. In one of these districts, all ten schools might have ratios of 12:1. In the other, the ratios might range from 5:1 to 40:1, with the average ending up at 12:1. The meaning of a 12:1 student to computer ratio is very different in these two cases.

We designed our questions to enable DTCs to estimate responses for the "typical," "modal," or "average" school, teacher, or student in their district. If we had gathered information at the school level or below, we would have aggregated responses. We would have been dependent upon responses being "representative" at the school, teacher, and student level. By asking the DTCs to do the aggregating for us, we have collected data based upon substantial expertise and experience, and in a much more cost-effective manner than would have been the case in a more disaggregated set of surveys. Representative state-by-state data directly from principals, teachers, and students would have required the selection of separate stratified random samples of each group in each of the 50 states, and follow-ups to ensure sufficient numbers of responses from members of each group from each stratification category. Our approach is to

rely on state technology directors to get as high a response rate from districts as possible; and our experience is that it is indeed possible to achieve high enough district response rates to ensure representativeness.

In calculating overall values of variables (counts or means) for each state, in many cases we weighted district responses according to the number of students in each district (See Appendix B). Thus, the majority of percentages given for each question does not reflect the actual frequency of DTC responses, but rather the percentage of students represented by DTCs. We gave districts with more students influence commensurate to their size when the variable being reported pertained to students or teachers. When we were simply counting the number of districts or schools in a district with or without a certain characteristic, we did not weight the responses. In addition, we computed (and weighted) the corresponding combined responses from the 21 states with response rates of 40 percent or more. The latter provides some basis for comparison for an individual state, but is not necessarily–indeed not likely–a representative national sample of the state of technology in our country's schools. Some very large states did not participate. We also recognize that those states that did survey their districts probably had a greater interest in technology, and were further along in putting it in their schools, than were non-participating states.

Nevertheless, we do have responses from 1,990 districts out of approximately 3,668 districts that were sent surveys in the 21 participating states. This report compares Kentucky, which had a response rate of 70% of its districts (the sixth highest of all our states), to all responding districts in the highest responding 21 states. The overall response rate in the 21 states was 54.3%. The cautions stated must be kept in mind; particularly that Kentucky is not being compared to a representative national sample.

Many of the survey questions required that the DTC respond on a five point Likert scale where 1 represents the lowest value on a continuum (i.e., never, not important) and 5 represents the highest value (i.e., always, very important). In what follows, we report the percentage of students represented by DTCs who responded 4 or 5 on each item unless otherwise indicated. In effect, we are identifying those who select at the top end of the scale, but we do not want to restrict ourselves to reporting on only the highest value as some respondents may be reluctant to use that ranking. In addition, where there is a single response, we have not followed with a table. Where there are stemmed responses, we include a table for reference.

LEARNERS AND LEARNING ENVIRONMENTS

In looking at the Learners and Learning Environments dimensions, we are asking…Are learners (students) using the technology in ways that deepen their understanding of the content in the academics standards and, at the same time, advancing their knowledge of the world around them? Is the learning environment designed to achieve high academic performance by students through the alignment of standards, research-proven learning practices and contemporary technology?

The ultimate goal of infusing technology into the schools must be to get students to learn while using technology and thereby to learn more and better about both the basic disciplines and technology itself. An intermediate step in this process is to make sure teachers understand and accept technology and use it optimally in the classroom.

To get a sense of teacher attitudes towards technology we asked district technology coordinators (DTCs) to indicate where teachers in their district fell on a scale where 1= "Technology is just another fad being mandated by those above them," and 5= "Technology is a powerful tool for helping them improve student learning." In Kentucky, DTCs representing 75.9% of students rated their teachers as 4 or 5 with a mean of 4.0. These ratings were higher than the 21 state totals of 68.3% rated as 4 or 5 and a mean of 3.8. In both cases, a majority of teachers (but not all by any means) view technology as a powerful educational tool (Table 1).

Table 2 presents information regarding how teachers in the districts use technology. In Kentucky, DTCs representing 67.5% of students indicated that teachers in their district frequently enhanced their curricula by integrating technology-based software into the teaching and learning process. This compares to 63.6% for all districts in the 21 states. DTCs representing 49.0% of students in Kentucky (compared to 46.5% overall) report that their teachers use cooperative group learning processes. DTCs representing 47.4% of students in Kentucky (compared to 35.8% overall) indicated that teachers frequently expect students to turn in class assignments produced with technology (i.e., word processing, email, spreadsheets). This was followed closely by DTCs representing 43.2% of students (32.7% overall) who indicated that their teachers frequently use technology to provide more inquiry-based learning projects. Project-based learning frequently takes place in the classroom as reported by DTCs representing 43.0% of students versus 43.7% overall. Finally, DTCs representing 39.1% of students (versus 27.2% overall) indicated that their teachers frequently adjust their teaching practices to meet individual student needs with the help of technology. To review, the most frequent uses teachers make of technology are integrating software into their teaching and cooperative learning. These are the types of uses predicted by experts in teaching and learning.

Another measure of technology engagement is the degree to which teachers interact with their district office regarding technology. We asked how many queries per week from teachers or schools that the district office receives regarding the planning and implementation of technology. Kentucky district offices averaged 17 queries per week versus 17 queries in districts in all 21 states. This is interesting when we realize that the average district in Kentucky is roughly half the size (2,881 students) of the average district in all 21 states (4,550 students), yet districts in Kentucky receive the same number of inquiries as do districts in the 21 states combined. Either Kentucky teachers are earlier on their learning curves than are teachers in other states or Kentucky teachers are more involved in technology and feel comfortable contacting their district offices for assistance.

Further, we asked what percentage of student classroom time was spent per week using computers or Internet technology. Kentucky was slightly higher in this measure at all grade levels as compared to the 21 states: elementary schools 15.2% versus 13.8% overall; middle schools 16.1% versus 14.7% overall; and high schools 20.9% versus 17.1% overall. Taking the overall high school percentage of 17.1% in 21 states and assuming a 6 hour school day, this means students average one-hour per day using technology. This is still a long way from full integration of technology into the curriculum.

After asking the district about teacher uses of technology, we then asked how students in the district use technology (Table 3). DTCs from Kentucky indicated that "students use technology in at least some of their regular classrooms" was the most frequent way technology was used by

students in their state (DTCs representing 84.2% of students compared to 56.0% in the 21 states). The next most frequent student use of technology was "students become more independent learners as a result of technology" reported by DTCs representing 71.3% of students in Kentucky and by 53.9% overall. Independent learning clearly takes place more frequently in Kentucky than in other states. Ranked third with the 4 or 5 rating by DTCs representing 62.2% of students in Kentucky (48.0% overall) was "students are developing online research expertise." Not far behind, DTCs representing 58.4% of students (44.4% overall) indicated that "students interacting/ communicating differently and more widely with the help of technology in the classroom" occurred very frequently.

On the other hand, based on the 4 or 5 ranking, DTCs representing only 35.1% of students in Kentucky (and 34.0% overall) said that "students use technology to improve their basic skills with drill and practice programs"—a big gap from the 58.4% above. DTCs representing 23.6 % of students in Kentucky reported that "students use computers only in a lab;" the overall was 31.3%. Kentucky DTCs representing 13.3% of students reported that the primary student-related use of technology was to "teach students how to use the technology itself" compared to 13.9% of overall. The next reported frequency by DTCs was 12.7% of students they represent in Kentucky "do more school work when not in school," compared to 13.1% of students overall. And finally, "students actively participate in distance learning with other schools" was the least frequent way technology was used in their districts with 6.1% compared to 7.5% overall. To review, regarding the top five student uses of technology, Kentucky exceeds other participating states. These are precisely the types of changes in student learning expected and desired from technology. Most of the activities getting frequency scores of 4 or 5 from DTCs representing 35% or less of students are actually less desirable uses of technology (drill and practice, lab only, to learn technology only, etc.).

The most frequently cited student outcome (Table 4) due to the use of technology, and the only one to be ranked at 4 or 5 by DTCs representing a majority of students in Kentucky was "students are more engaged in learning" (DTCs representing 68.9% of students rated this a 4 or 5 in Kentucky versus 60.6% overall). Next came "deepened understanding of academic subjects," which was ranked 4 or 5 by DTCs representing 55.9% students in Kentucky and 45.6% overall. There was then a drop in the percent of DTCs indicating frequent occurrence of outcomes. Ranked third by Kentucky DTCs representing only 42.5% of the students was "schools report that students have better grades and/or test scores since they began using technology" (compared to 27.8% overall). Many people predict that attendance will improve as technology use grows, yet DTCs representing only 25.4% of Kentucky's students (21.6% overall) said on a scale of 4 or 5 that "schools report an increase in attendance on days that students are scheduled to use technology." DTCs representing 5.7% of students in Kentucky ranked 4 or 5 that the "student dropout rate has decreased due to the use of technology" versus 7.3% overall. It is difficult to isolate the effect of technology on most of the student outcomes that occur infrequently. Further, many of these outcomes would require many years of technology use before the impact can be measurable.

PROFESSIONAL COMPETENCY

In looking at the Professional Competency dimension, we are asking…Is the educator fluent with technology and does he/she effectively use technology to the learning advantage of his/her students? In this section we inquired about the amount of training teachers received over the

past twelve months and their skill levels in various uses of technology (Table 5). DTCs reported that Kentucky teachers received less total training than did teachers in other participating states (8.1 hours compared to 12.8 hours); and this was true regarding training in every suggested area. However, DTC rankings of teacher skills were more variable. Kentucky DTCs representing between 0.3% and 38.5% of students reported that their teachers were "advanced" in various skills (4 or 5 on a scale where 1= "beginner" and 5= "advanced"), with the highest share of DTCs (38.5% versus 25.8% overall) indicating their teachers were advanced in using email[2]. In nearly all of the states, DTCs indicated that teachers had the highest skill levels in using email. Although districts indicated that their teachers received a very small amount of training in using email, they also reported that more teachers were skilled in using email than in performing any other technology-related functions. Probably the reason teachers get relatively few hours of training in how to use email is that more of them already know how to use it.

The second highest share indicated advanced teacher skill in computer use (DTCs representing 22.9% of students in Kentucky versus 13.4% overall). Kentucky DTCs reported that their teachers were more advanced in Internet use compared to overall (DTCs representing 18.4% of students in Kentucky versus 15.5% overall). This was followed by: integrating technology into instruction (DTCs representing 16.7% of students versus 13.3% overall); software applications (15.4% versus 12.5% overall); and online projects (7.2% versus 6.2% overall). However, districts represented by almost half as many students in Kentucky had teachers who were described as advanced in using multimedia peripherals (1.5% versus the overall 3.8%). Teachers representing 0.3% of students were reported by DTCs to be less advanced than the overall (6.2%) in using distance learning equipment and infrastructure. Other than these last two uses, Kentucky teachers appear to be more advanced than teachers overall in their skill of using technology.

An important observation regarding teacher competency is the low ratings by DTCs of most teachers in the majority of states vis-à-vis most of the skills queried. Clearly, teachers have a long way to go before they are to be rated as having high levels of skills in all of the uses of modern technology deemed valuable in their classrooms.

Another measure of teacher competency is the extent to which teachers actually use technology in their own work (Table 6). DTCs representing 53.3% of students in Kentucky (versus 37.8% overall) said that their teachers use technology very frequently to help with their administrative work and classroom management (for tasks like grade and attendance recording). Although the use of technology for administrative tasks is often the first technology that teachers use, there is still a long way to go in order to involve all (or most) teachers in using technology for classroom management.

According to DTCs, the next two most frequent uses of technology were communicating with colleagues (DTCs representing 50.7% of students versus 30.5% overall) and teaching writing using desktop publishing (DTCs representing 38.3% of students in Kentucky versus 22.3% overall). The last three suggested uses of technology received fewer "very much" ratings: using simulations when teaching science (16.9% in Kentucky versus 8.6% overall); accessing experts (12.9% in Kentucky versus 10.3% overall); and accessing training (7.5% in Kentucky versus 6.6% overall). Teachers everywhere have a long way to go in using technology in the most sophisticated ways.

2. We are not including the "other" category in ranking skills.

SYSTEM CAPACITY

In looking at the System Capacity dimension, we are asking…Is the education system reengineering itself to systematically meet the needs of learners in this knowledge-based, global society? We suggested five measures of technology progress that districts might track formally (Table 7). The majority of districts in Kentucky and overall said "yes," they do track each of them. The most frequently tracked measure in Kentucky and across the 21 states was "what technology is available at the schools" (98.4% yes compared to 95.3% overall). This was followed by "the location of technology in the schools" (95.9% yes compared to 95.1% overall). Next came "how much training in technology the teachers received" (83.6% in Kentucky versus 72.9% overall), and "how students use technology" reported by 53.3% of districts versus 56.5% overall. Last was "how teachers use technology" which was tracked by 49.6% of districts in Kentucky and 51.6% overall. The fact that so many districts track such a wide range of technology indicators gives us confidence in the responses of DTCs throughout the survey, especially in Kentucky.

Kentucky districts appear to evaluate technology use in schools somewhat less frequently than other states in our sample, with 73.8% in Kentucky doing so yearly or more frequently (versus 80.0% overall). DTCs representing 33.3% of students in Kentucky said their districts used technology in student assessment efforts frequently (4 or 5 on a scale where 1= never and 5= frequently). This compares to 20.9% overall.

Kentucky DTCs representing 44.8% of students (versus 53.2% overall) said teachers in their districts received incentives for technological fluency and/or changing teaching methods to take advantage of available technology (Table 8). Of those who indicated they provide incentives, the incentive provided most often was participation in special workshops (districts representing 49.3% of students in Kentucky versus 52.3% overall). Following this the DTCs indicated that they provide additional resources for the classroom (districts representing 44.1% of students in Kentucky versus 45.0% overall); positive evaluations (40.2% in Kentucky versus 29.6% overall); release time (32.2% in Kentucky versus 38.0% overall); free software (25.1% in Kentucky versus 18.9% overall); salary supplement (15.9% in Kentucky versus 19.2% overall); school or district recognition program (15.7% in Kentucky versus 15.7% overall); mentor teacher designation (13.3% in Kentucky versus 25.6% overall); and free or discounted computers for their own use (7.6% in Kentucky versus 15.3% overall). Although many of these incentives are not used widely, our data suggest it may be possible to assess different impacts of various types of incentives. The results could indicate which incentive should be provided more broadly.

We also asked about which technology progress indicators the district reports to the local school board and/or to the community (Table 9). The most frequently reported indicator in Kentucky and in all 21 states was the "number of classrooms wired" (reported by 94.4% of Kentucky districts and 71.6% of districts overall). This might be due to recent interest in the E-Rate. The next most frequently reported indicator in Kentucky was the "student to computer ratio" (92.7% versus 55.6% overall). The third most frequently reported indicator was "anecdotes about how students and teachers are using technology effectively" reported by 70.2% of Kentucky districts and 59.8% of all districts. Given the limited controlled research on technology's impact in the schools, anecdotes are often the most compelling support for additional funding. "Increased administrative efficiencies (i.e. grading systems, attendance reporting, communicating with parents)" followed next with 55.6% of districts in Kentucky

versus 47.0% overall. The next most frequently reported indicators of technology progress in Kentucky were: "externally funded projects" (54.0% versus 47.2% overall); "student performance/achievement gains" (43.5% versus 34.9% overall); and "increases in motivation or engagement of students in basic academic areas" (31.5% versus 25.4% overall). "Community's use of technology" and "increased teacher productivity" were reported nearly the same in Kentucky as in all 21 states (29.0% versus 28.9% overall and 26.6% versus 23.3% overall respectively) as was "level of teacher technological fluency" (25.8% versus 27.7% overall) and "level of student technological fluency" (25.0% versus 24.8% overall). Nearly 23.0% of districts in Kentucky said they reported "use and effectiveness of distance learning" versus 18.5% overall. Only 4.0% of districts in Kentucky indicated they did not report technology progress indicators versus 19.7% overall.

COMMUNITY CONNECTIONS (EXTERNAL SUPPORT)

In looking at the Community Connections dimension, we are asking…Is the school-community relationship one of trust and respect, and is this translating into mutually beneficial, sustainable partnerships in the area of learning technology? We asked about the level of support for technology plans from various groups or individuals (Table 10). In Kentucky, the strongest support came from the state department of education (DTCs representing 93.8% of students versus 80.5% overall rated this very high: 4 or 5 on a scale where 1 = little or no support and 5 = very high support.). (This might explain why Kentucky obtained such a high response rate to this survey, after districts were prodded into responding by the Department of Education under the direction of the state technology director.) The next strongest support came from students (DTCs representing 84.2% of students versus 72.1% overall). In the 21 states overall, the strongest support came from the superintendent; however, in Kentucky this was the third strongest support (DTCs representing 83.3% of the students in Kentucky versus 83.2% overall). This was followed by the county office of education (DTCs representing 74.2% of students versus 55.5% overall); principals (DTCs representing 73.1% of students versus 68.8% overall); school board (DTCs representing 72.9% of students versus 72.0% overall); and regional educational service agencies (DTCs representing 70.3% versus 56.4% overall). Next came support from the teachers (66.5% versus 63.6% overall); parents (62.1% versus 59.4% overall); and the business community support (53.1% versus 58.8% overall). The last six groups' levels of support in Kentucky lagged behind the overall average: teachers' associations (35.4% versus 44.8% overall); telecommunications companies (35.0% versus 53.1% overall); software/hardware companies (34.7% versus 57.4% overall); local post-secondary institutions (24.7% versus 43.5% overall); community groups (23.7% versus 36.0% overall); and foundations (19.5% versus 38.8% overall). Support was stronger in Kentucky than overall in nine of the 16 suggested support entities. It is striking how high the level of support is from almost all suggested groups both internal and external to the schools.

Beyond the moral support just discussed, we asked about funding or contributing in-kind goods and services from various government and non-government sources (Table 11). District general funds were used by districts representing most of Kentucky's students (96.8%) versus 73.8% overall). Other governmental funding came from state funds (in districts representing 96.6% of students in Kentucky, 86.6% overall) and federal funds (DTCs representing 79.2% of students versus 63.7% overall). District categorical funds for technology were used nearly as often as overall (64.5% versus 63.6% overall). Few districts used funds for technology obtained from local bonds in Kentucky (7.9% versus 28.5% overall). Finishing last was use of state bonds for technology (in districts representing 1.0% of students versus 8.4% overall).

Among non-governmental sources, Kentucky districts were more likely than districts in other participating states to rely upon school fundraising (DTCs representing 74.6% of students versus 58.3% overall). Other non-governmental funding came from parents (43.8% versus 48.3% overall), software/hardware companies (33.1% versus 32.0% overall), other businesses (DTCs representing 32.8% of students versus 33.1% overall), community partnerships (27.8% versus 35.8% overall), telecommunications companies (23.6% versus 29.3% overall), foundations (21.1% versus 32.6% overall), local post-secondary institutions (11.3% versus 12.2% overall), and teachers' associations (1.0% versus 2.1% overall).

External support is also reflected by involvement of parents and other members of the community in the technology-related activities of the schools. We suggested five ways this might occur, and DTCs indicated that none of them occur very frequently (Table 12). Overall, the modal response on all five activities was 2 on a 1 to 5 scale, where 1= never and 5= frequently. In Kentucky, the modal response was 2 on four activities and 3 on the fifth. "Parents and teachers can communicate via email" occurred frequently (i.e., 4 or 5) according to DTCs representing 28.4% of students in Kentucky and 19.0% overall. The next most frequent response was "students have access to technology in schools during non-school hours" (DTCs representing 24.9% of students in Kentucky versus 17.7% overall). "Community has access to technology in schools during non-school hours" at 22.6% was the next most frequently reported use versus 15.3% overall, followed by "school staff provides support to community members for their technology needs" with 18.5% in Kentucky versus 11.3% overall. The last reported use was "students provide support to community members for their technology needs" at 13.2% versus 7.1% overall.

Fewer of Kentucky's school districts than districts in other states had formal partnerships with businesses or other organizations that focus on school technology (Table 13). DTCs representing only 26.7% of students in Kentucky indicated their districts had partnerships with regional educational service agencies versus 30.9% overall. Next most frequent were partnerships with local non-technology business at 23.3% versus 30.2% overall. But local colleges/universities partnerships were about half as frequent in Kentucky (DTCs representing 22.1% of students) compared to the overall of the 21 states (41.6%). This was also true of telecommunications companies (15.1% versus 39.9% overall). The next four followed the same pattern with Kentucky partnerships less than half of our overall: software/hardware companies (DTCs representing 13.0% of students in Kentucky and 42.5% in all our states); community groups (12.6% versus 27.3% overall); foundations (12.5% versus 31.5% overall); and professional organizations (7.5% versus 15.8% overall).

TECHNOLOGY CAPACITY

In looking at the Technology Capacity dimension, we are asking…Are there adequate technology, networks, electronic resources and support to meet the education system's learning goals? All districts in Kentucky and 95.6% of districts overall have a formal technology plan. Kentucky's district plans covered 3.4 years on average, compared to 4.1 years overall.

The total cost of a district plan is meaningless without knowing the number of years covered and the number of students in the district. Adjusting for length of plan and number of students, we find that the average cost of Kentucky's districts' technology plans per student weighted by the number of students in each district is $136.26 per year compared to the 21 state weighted average of $145.45[3]. However, we expect that current district technology plan budgets are not the total

3. Both of these figures are less than the 4% of current per student spending that the Milken Exchange estimates will be required for the full implementation and maintenance of school technology.

amount that has been or will be spent on technology in the districts, and these expenditures do not include spending at the state level for things such as state networks, training and infrastructure.

In Kentucky, DTCs indicated that 50.6% of their technology plans have been funded versus 43.9% overall. This is a larger percentage than we have estimated for the U.S. as a whole, which confirms our belief that states participating in this survey are further along than non-participants. Moreover, districts probably are further along with their plans than are the states with their statewide planning. Kentucky DTCs estimate that 3.6% of district capital budgets and 3.7% of operating budgets are going toward technology compared to 5.6% and 3.4% respectively for the 21 states combined.

What is this money buying? The student to computer ratio is probably the most frequently used indicator of the progress schools are making regarding technology. It is also a measure whose meaning varies greatly depending upon what computers are included (i.e., the Apple IIes that are locked in the closet). The ratio is also a number that people have great difficulty reporting for some reason: reversing the numerator and denominator, giving the total number of computers rather than the number per student, and so on. Thus we must be careful to ask the question artfully and to include only valid responses. In this survey, we asked for the "number of students to each Internet capable computer available for student use." The weighted[4] mean response was 16.0 students per Internet capable computer in Kentucky and 36.3 students per Internet capable computer overall. If correct, these ratios are far from the 4:1 or 5:1 we aim for. The high ratio for all states made us question its validity. A few districts indicated their ratio was almost 500:1. This may be unusual, but it could reflect schools of several thousand students with only a few Internet capable computers accessible to students. If there were 30 students per class, a 45:1 ratio tells us that schools have one Internet capable computer in half the classrooms. If the overall number makes any sense at all, Kentucky is far better off than the average district in our responding states.

We asked what percentage of schools in the district have the majority of their classrooms connected to a local area network, and the response was districts representing 75.2% of the students in Kentucky and 56.4% in all 21 states. (Note: if districts representing half the students have half their classrooms connected, using only one computer in each classroom, that is consistent with the 45:1 ratio just discussed.) In particular, districts representing 66.7% of students in Kentucky and 48.5% in all 21 states had the majority of their classrooms connected to the Internet via the LAN; and another 19.0% in Kentucky and 21.5% overall were connected to the Internet via a direct telephone line.

We identified a number of other interesting proxies for technology capacity. We asked, "when technology at your school breaks down what is the range of time it typically takes to fix the problem." We gave DTCs the option of providing the time in hours or days; in Kentucky the weighted mean number of hours was 10.8 and the weighted mean number of days was 2.7. In all 21 states the comparable figures were 5.6 hours and 3.6 days. The hour and day figures might be suggesting a range of the time it takes to get technology repaired.

We tried to understand who provides technical support or maintenance for technology in the districts by asking about the frequency with which various sources would provide such help

4. We weighted the student to computer ratio by the number of students in each district. If a district with only 200 students had a 15:1 ratio, while a district with 20,000 had a 5:1 ratio, the unweighted mean would be 10:1. This would not accurately reflect that the great majority of students were in districts which had a 5:1 ratio.

(Table 14). In Kentucky, the source cited most often as frequently providing the service was "other school staff hired specifically for those purposes (including computer lab teachers, computer aides)" (DTCs representing 63.9% of students in Kentucky said frequently compared to 72.4% overall). This was followed by "district provides on contract or as needed" (53.6% in Kentucky versus 53.8% overall), "library media teacher" (48.0% versus 39.6%), "other school staff with additional responsibilities" (46.8% versus 33.3%), "students" (26.7% versus 7.7% overall), "commercial providers on contract or as needed" (25.4% versus 24.0%), "classroom teachers" (11.5% versus 18.5%), and "regional educational service agencies" (2.7% versus 11.5%).

Finally we inquired about the percent of computers at district schools that are not used (Table 15). The response was lower in Kentucky as compared to the 21 states overall (DTCs representing 4.8% of students and 5.9% respectively). Then we asked about factors explaining why these computers are not used. The most important factor was that the teachers are not trained to use them. DTCs representing 52.8% of students in Kentucky and 50% overall said this factor was very important (by giving it a 4 or 5 on a 5 point scale where 1= not important and 5= very important). The next most important reason why computers were not used was that computers were outdated (50.2% in Kentucky and 67.9% overall). This was followed by: no interest (44.8% versus 29.9% overall); a need to revise the curriculum (41.0% versus 34.9% overall); classrooms do not have the appropriate wiring (36.7% versus 30.4% overall); computers require repair (33.2% versus 29.8% overall); no appropriate software (15.1% versus 21.9% overall); and too many other computers (4.3% versus 4.5% overall).

We asked the percentage of schools in each district that have benefited directly from various federal programs. Although we intended to focus on the E-Rate and the Technology Literacy Challenge Fund (TLCF), the "other" category came out on top with DTCs from Kentucky indicating that 95.6% of their schools benefited compared to 36.4% overall. This is likely because schools were using Title I and special education money for technology. In Kentucky, DTCs indicated that 85.8% of school districts (23.3% overall) had benefited from TLCF money.

DTCs in Kentucky expect that 18.9% of the total cost of implementing technology will be reduced by the E-Rate, compared to 11% for all 21 states. Interestingly, DTCs indicated that 49.7% of Kentucky schools (versus 31.8% overall) had benefited from E-Rate discounts. This is surprising because no E-Rate discounts had been awarded by the time of this survey. Some DTCs may have been anticipating discounts in the future, but because others might have been considering only discounts to date (i.e., none) these numbers are meaningless. We had expected the E-Rate program to be further along by the time of this survey.

CONCLUSION

Kentucky clearly has made progress toward fully implementing technology in its schools. It looks strong in comparison to the overall findings of the 21 states, which are themselves likely above the national average in their school technology achievements. This report indicates where districts in the state stand regarding a number of technology progress indicators, and hopefully, provides insights as to where extra effort is needed.

TABLE 1 WEIGHTED

Teacher Attitude Toward Technology

In general, where do teachers in your district fall on a scale in which 1 indicates that "they believe technology is just another fad being mandated by those above them" and 5 is "a powerful tool for helping them improve student learning"?

	KY	ALL 21
Percent 4 and 5	75.9	68.3
Mean	4.0	3.8

TABLE 2 WEIGHTED

Frequency of Teacher Use

Percent indicating 4 and 5 on a scale in which 1 is "Never" and 5 is "Almost Always"

	KY	ALL 21
Curricula are enhanced by integrating technology-based software into the teaching and learning process.	67.5	63.6
Teachers use cooperative group learning processes.	49.0	46.5
Teachers expect that students turn-in class assignments produced with technology (i.e., word processing, email, spreadsheets).	47.4	35.8
Teachers use technology to provide more inquiry-based learning projects.	43.2	32.7
Project-based learning takes place.	43.0	43.7
Teachers adjust their teaching practices to meet individual student needs with the help of technology.	39.1	27.2

TABLE 3 WEIGHTED

Frequency of Student Use

Percent indicating 4 and 5 on a scale in which 1 is "Never" and 5 is "Almost Always"

	KY	ALL 21
Students use technology in at least some of their regular classrooms.	84.2	56.0
Students become more independent learners as a result of technology.	71.3	53.9
Students are developing online research expertise.	62.2	48.0
Students are interacting/communicating differently and more widely with the help of technology in the classroom.	58.4	44.4
Students use technology to improve their basic skills with drill and practice programs.	35.1	34.0
Students use computers only in a lab.	23.6	31.3
The primary student-related use of technology is to teach students how to use the technology itself.	13.3	13.9
Students do more schoolwork when not in school.	12.7	13.1
Students actively participate in distance learning with other schools.	6.1	7.5

TABLE 4 WEIGHTED

Frequency of Student Outcomes

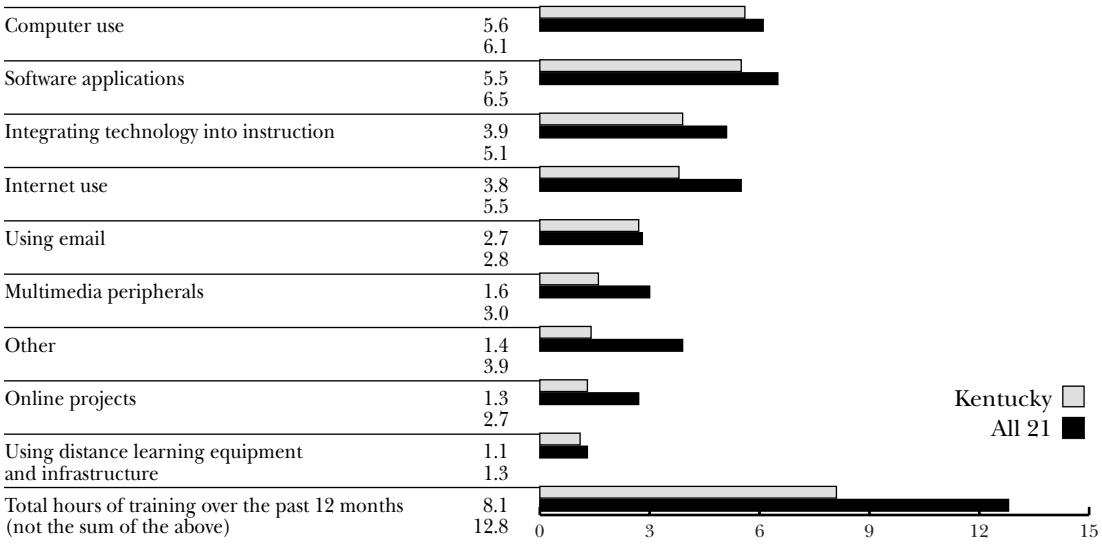
Percent indicating 4 and 5 on a scale in which 1 is "Never" and 5 is "Almost Always"

	KY	ALL 21
Students are more engaged in learning due to technology.	68.9	60.6
Student understanding of academic subjects has deepened due to technology in the classroom.	55.9	45.6
Schools report that students have better grades and/or test scores since they began using technology.	42.5	27.8
Schools report an increase in attendance on days that students are scheduled to use technology	25.4	21.6
Schools have reported decreases in the student dropout rate attributed to the use of technology.	5.7	7.3

TABLE 5 WEIGHTED

Teacher Training

Typical hours of training over past 12 months



Skill Level of Typical Teacher

Percent indicating 4 and 5 on a scale in which 1 is "Beginner" and 5 is "Advanced"

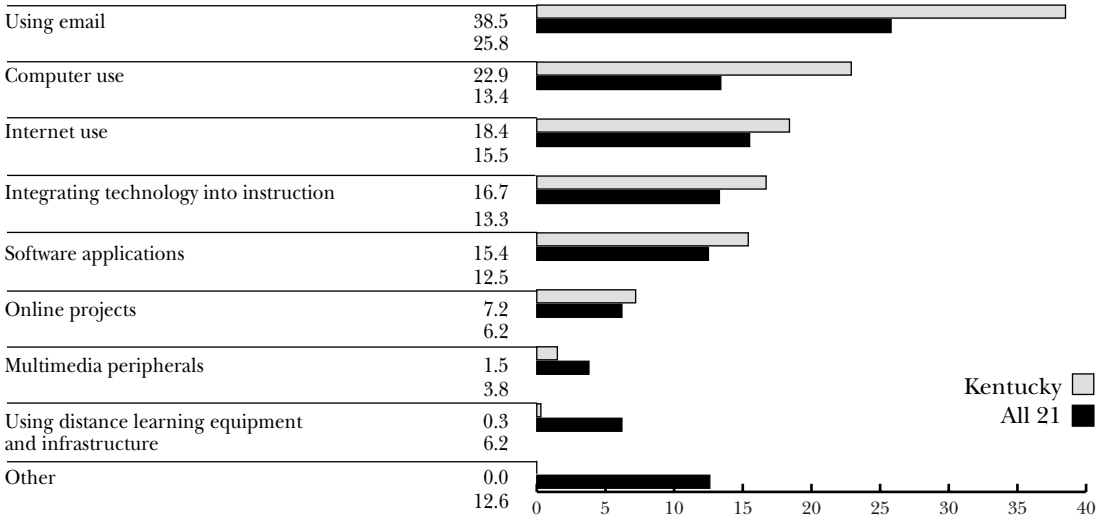


TABLE 6 WEIGHTED

Extent To Which Teachers in District Use Technology in Their Own Practice

Percent indicating 4 and 5 on a scale in which 1 is "Not at All" and 5 is "Very Much"

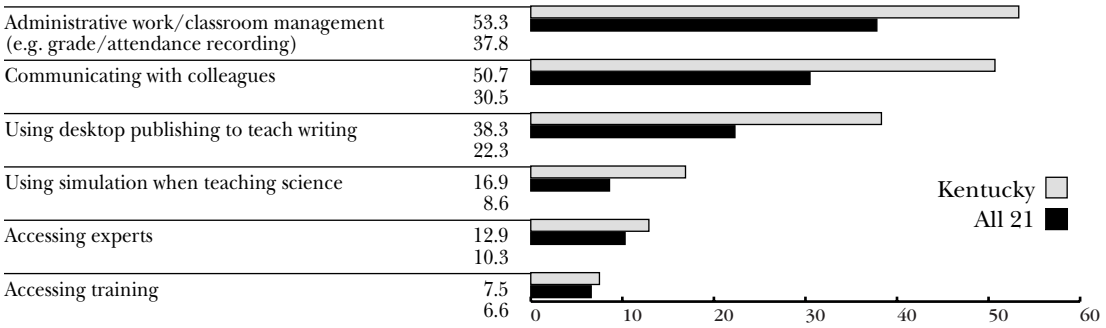


TABLE 7 UNWEIGHTED

Methods Used by District to Track Technology Unweighted

Percent responding yes

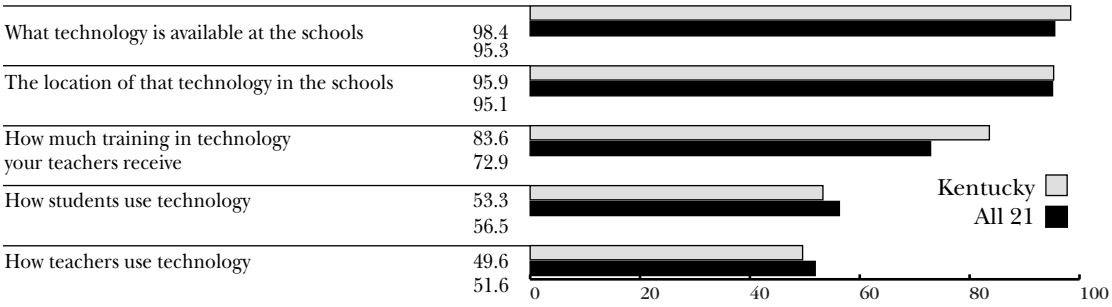


TABLE 8 WEIGHTED

Teacher Incentives

	KY	ALL 21
Percent of districts whose teachers receive incentives for technological fluency and/or changing teaching methods to take advantage of available technology	44.8	53.2

Incentives Districts Provide for Teachers Who Use Technology

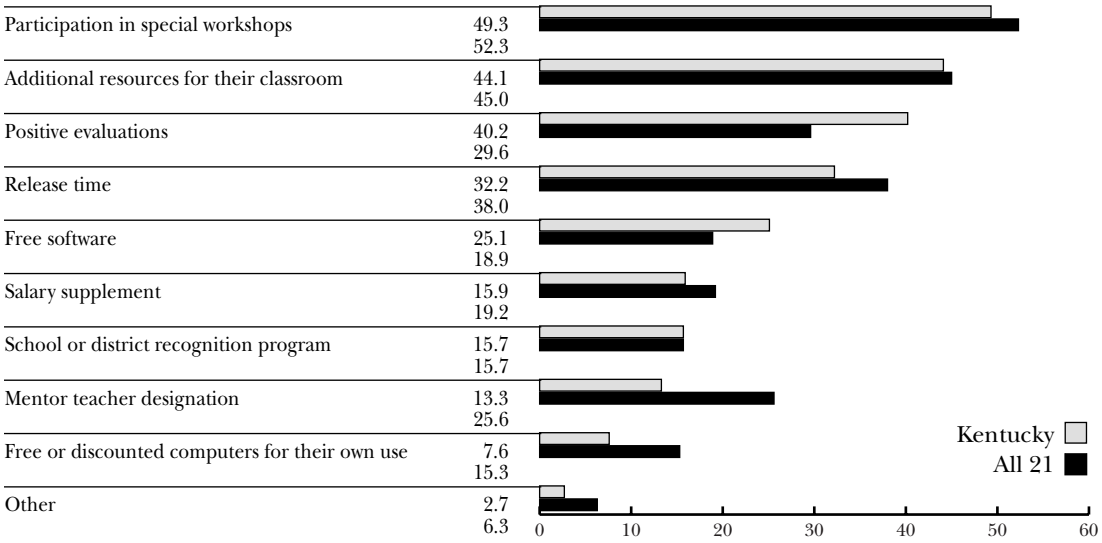


TABLE 9 UNWEIGHTED

Technology Progress Indicators that the District Reports to Local School Board and/or Community

Percent indicating they report indicator

	KY	ALL 21
Number of classrooms wired	94.4	71.6
Student to computer ratio	92.7	55.6
Anecdotes about how students and teachers are using technology effectively	70.2	59.8
Increases in motivation or engagement of students in the basic academic areas	55.6	47.0
Externally funded projects	54.0	47.2
Student performance/achievement gains	43.5	34.9
Increases in motivation or engagement of students in the basic academic areas	31.5	25.4
Community's use of technology	29.0	28.9
Increased teacher productivity	26.6	23.3
Level of teacher technological fluency	25.8	27.7
Level of student technological fluency	25.0	24.8
Use and effectiveness of distance learning	22.6	18.5
We do not report technology progress indicators	4.0	19.7
Other	1.6	2.9

TABLE 10 WEIGHTED

Level of Support for Technology Plan by the following groups

Percent indicating 4 and 5 on a scale in which 1 is "Little or None" and 5 is "Very High".

	KY	ALL 21
State department of education	93.8	80.5
Students	84.2	72.1
Superintendent	83.3	83.2
County office of education	74.2	55.5
Principals	73.1	68.8
School board	72.9	72.0
Regional educational service agencies	70.3	56.4
Teachers	66.5	63.6
Parents	62.1	59.4
Business community	53.1	58.8
Teachers' association	35.4	44.8
Telecommunications companies	35.0	53.1
Software/hardware companies	34.7	57.4
Local post-secondary institutions	24.7	43.5
Community groups	23.7	36.0
Foundations	19.5	38.8

TABLE 11 WEIGHTED

Sources of Funding or In-kind Goods and Services for Technology to Date

Percent responding yes

Governmental	KY	ALL 21
District general funds	96.8	73.8
State funds	96.6	86.6
Federal funds	79.2	63.7
District categorical funds for technology	64.5	63.6
Other	11.2	6.8
Local bonds	7.9	28.5
Regional educational service agencies	7.4	17.6
State bonds	1.0	8.4

Non-Governmental	KY	ALL 21
School fund-raising	74.6	58.3
Parents	43.8	48.3
Software/hardware companies	33.1	32.0
Other businesses	32.8	33.1
Community partnerships	27.8	35.8
Telecommunications companies	23.6	29.3
Foundations	21.1	32.6
Local post-secondary institutions	11.3	12.2
Other	6.5	2.6
Teachers' association	1.0	2.1

TABLE 12 WEIGHTED

Uses of Technology

Percent in which each of the following occur on a scale in which 1 is "Never" and 5 is "Frequently"

	KY	ALL 21
Parents and teachers can communicate via email	26.7	19.0
Students have access to technology during non-school hours	24.9	17.7
Community has access to technology in schools during non-school hours	22.6	15.3
School staff provides support to community members for their technology needs	18.5	11.3
Students provide support to community members for their technology needs	13.2	7.1

TABLE 13 WEIGHTED

Schools in District that Have Formal Partnerships that Focus on School Technology

Percent indicating they have partnership

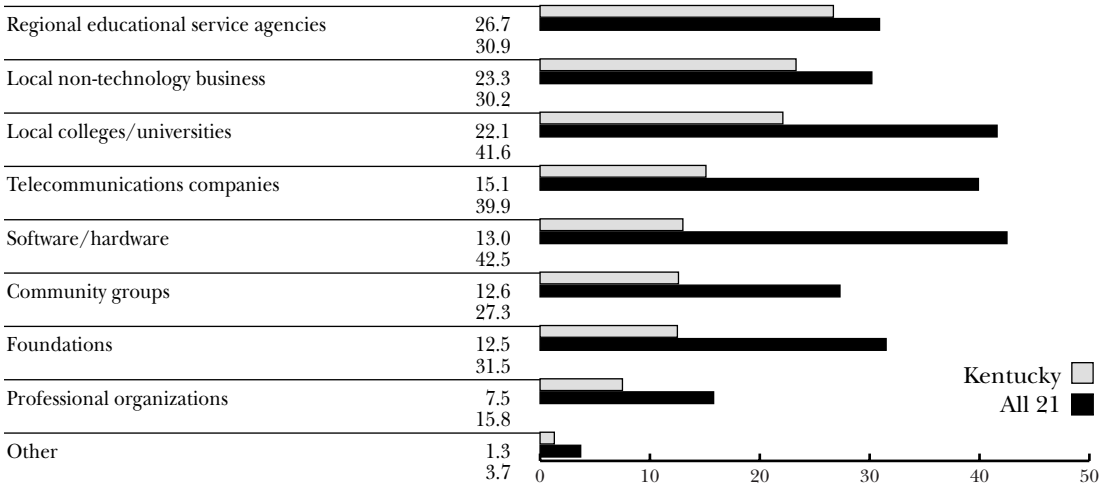


TABLE 14 WEIGHTED

Frequency of Providing Technical Support or Maintenance for Technology

Percent indicating frequently

	KY	ALL 21
Other	75.6	53.4
Other school staff hired specifically for those purposes (including computer lab teachers, computer aides)	63.9	72.4
District provides on contract or as needed	53.6	53.6
Library media teacher	48.0	39.6
Other school staff with additional responsibilities	46.8	33.3
Students	26.7	7.7
Commercial providers on contract or as needed	25.4	24.0
Classroom teachers	11.5	18.5
Regional educational service agencies	2.7	11.5

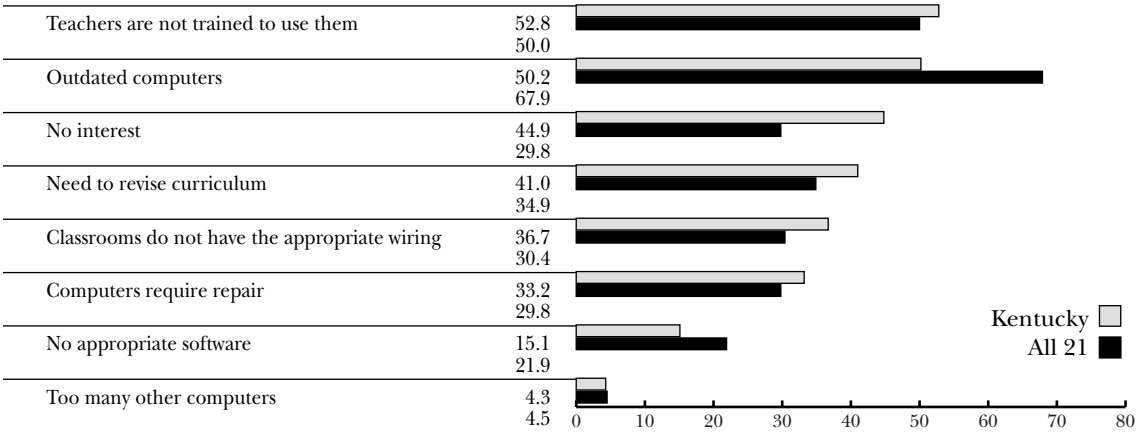
TABLE 15 WEIGHTED

Computers at Schools that are Not Used

	KY	ALL 21
Percent not used	4.8	5.9

Important Factors in Explaining Why These Computers are Not Used

Percent indicating 4 and 5 on a scale in which 1 is "Not Important" and 5 is "Very Important"



Milken EXCHANGE on education technology

Dear District Technology Coordinator,

It is important to get timely education technology data that are accurate and comparable across states. The Milken Exchange on Education Technology, in cooperation with the state technology directors, has prepared a brief survey to be completed by district technology coordinators. The responses will be collected and tabulated by the Milken Exchange.

The Milken Exchange was established in 1997 to advance a compelling national agenda for education through five key strategies: increasing public awareness; advancing public policy; supporting new designs for teaching and learning; building capacity of schools through planning; and reflecting and acting on research and practice.

This project could play a key role in the success of school technology in your state. If we can show that schools have changed for the better when they use technology properly—and that test score gains are not the only measure of improvement—this will help secure future support and funding. We believe that the selected questions will provide a good picture of the status of technology in our nation's schools; and it includes questions that are important but often not asked.

As you answer the enclosed survey questions, please remember that it is a survey of *districts* rather than of individual schools. Thus please reply with reference to the "typical" school, classroom, teacher or student in your district, even though we recognize that there can be significant variance in levels of technology within a district. We are *not* asking districts to survey their schools; we are seeking the views of and information from the district technology coordinators themselves.

In the very largest districts we have asked the state technology directors to send surveys to regional technology coordinators within the districts as well as to the district technology coordinator. If you are one of the regional technology coordinators in a large school district, please respond for your region only.

It is vitally important that we get a very high response rate from districts so that we can provide an accurate picture of school technology in your state. We urge you to complete the survey either in paper form and return it in the accompanying envelope, or over the web by accessing **http://www.milkenexchange.org/pilot/**.

PLEASE RETURN YOUR COMPLETED QUESTIONNAIRE BY MAY 7TH.
The survey should take under one hour to complete.

If you have questions, please contact Dr. Tamara Schiff of the Milken Family Foundation at 310-998-2686 or email her at tschiff@mff.org. Thank you for your participation in this valuable data collection project.

Sincerely,

Lewis C. Solmon

Lewis C. Solmon
Senior Vice President and Project Director

MILKEN EXCHANGE ON EDUCATION TECHNOLOGY
Survey of Technology in the Schools

We are interested in the perceptions of district technology coordinators. Please respond with reference to the "representative" school in your district, and refer to the "typical" classroom in that school. We have separated our questions according to categories in a framework of Progress Indicators developed by the Milken Exchange in collaboration with the state technology directors.

Your name: _____

Title: _____

School district: _____

Mailing address: _____

City: _____ State: _____ Zip: _____

Phone: _____ Fax: _____ Email: _____

How many schools are in your district? Number _____

How many students are in your district? Number _____

If you are responding for a school rather than a district, please indicate if your school is a : (Mark one only.)

☐ Charter school ☐ Parochial school ☐ Independent school ☐ Public school

☐ Other, please specify .....

LEARNERS/LEARNING ENVIRONMENTS

1 **Please indicate how frequently each of the following occur in schools in your district:** (Check frequency for each item.)

Student Use	SCALE:	NEVER 1	2	3	4	ALMOST ALWAYS 5	DON'T KNOW 6
Students use computers only in a lab.							
Students use technology in at least some of their regular classrooms.							
Students actively participate in distance learning with other schools.							
The primary student-related use of technology is to teach students how to use the technology itself.							
Students use technology to improve their basic skills with drill and practice programs.							
Students are developing online research expertise.							
Students are interacting/communicating differently and more widely with the help of technology in the classroom.							
Students become more independent learners as a result of technology.							
Students do more school work when not in school.							

Student Outcomes	SCALE:	NEVER 1	2	3	4	ALMOST ALWAYS 5	DON'T KNOW 6
Students are more engaged in learning due to technology.							
Student understanding of academic subjects has deepened due to technology in the classroom.							
Schools report an increase in attendance on days that students are scheduled to use technology.							
Schools have reported decreases in the student dropout rate attributed to the use of technology.							
Schools report that students have better grades and/or test scores since they began using technology.							

Teacher Use	SCALE:	NEVER 1	2	3	4	ALMOST ALWAYS 5	DON'T KNOW 6
Curricula are enhanced by integrating technology-based software into the teaching and learning process.							
Teachers expect that students turn-in class assignments produced with technology *(i.e., word processing, email, spreadsheets).*							
Teachers use technology to provide more inquiry-based learning projects.							
Teachers adjust their teaching practices to meet individual student needs with the help of technology.							
Teachers use cooperative group learning processes.							
Project-based learning takes place.							

2 **What percentage of student classroom time per week is spent using computers or Internet technology?** (Check percentage for each item.)

	SCALE:	0%	1-5%	6-20%	21-40%	41-60%	MORE THAN 60%
Elementary schools							
Middle schools							
High schools							

3 **On average, how many queries per week from teachers or schools in your district does your office receive regarding the planning and implementation of technology?**

Number of queries: _____

4 **In general, where do teachers in your district fall on a scale in which 1 indicates that "they believe technology is just another fad being mandated by those above them" and 5 is "a powerful tool for helping them improve student learning"?**

SCALE:	MANDATED FAD 1	2	3	4	VALUABLE TOOL 5

PROFESSIONAL COMPETENCY

5 **A) *On average*, how many hours of technology training has a typical teacher in your district received in the last year?**
(Note: The same training can enhance more than one skill; so if, for example, a ten hour course provides training in both software applications and Internet use, enter 10 for both.)

B) How would you rate the skill level of your typical teacher on a scale of 1 to 5 where 1 is beginner and 5 is advanced?

(Indicate hours and rating for each item.)	HOURS OF TRAINING OVER PAST 12 MOS.	SKILL LEVEL SCALE: BEGINNER 1	2	3	4	ADVANCED 5
Computer use						
Software applications						
Internet use						
Multimedia peripherals						
Online projects						
Using distance learning equipment and infrastructure						
Integrating technology into instruction						
Using email						
Other, please specify						
Total hours of technology training for the typical teacher *(not the sum of the above)*						

6 **To what extent are teachers in your district using technology in their own practice?** (Check extent for each item.)

	SCALE: NOT AT ALL 1	2	3	4	VERY MUCH 5
Administrative work/classroom management *(e.g. grade/attendance recording)*					
Communicating with colleagues					
Accessing experts					
Accessing training					
Using simulations when teaching science					
Using desktop publishing to teach writing					

SYSTEM CAPACITY

7 **Does your district formally keep track of:**

	YES	NO
What technology is available at the schools.	☐	☐
The location of that technology in the schools.	☐	☐
How teachers use the technology.	☐	☐
How students use the technology.	☐	☐
How much training in technology your teachers receive.	☐	☐

8 **How frequently does your district evaluate technology use in your schools?**

☐ More than once a year ☐ Yearly ☐ Less frequently than yearly ☐ Never

9 **To what extent is technology used in student assessment efforts in your district?**

SCALE:	NEVER 1	2	3	4	FREQUENTLY 5

10 **Are teachers in your district given incentives for acquiring technological fluency and/or for changing their teaching methods to take advantage of the available technology?** ☐ YES ☐ NO (If no, skip to question 12.)

11 **What incentives does your district provide for teachers who use technology?**

	YES	NO
Salary supplement	☐	☐
Mentor teacher designation *(or similar designation)*	☐	☐
Participation in special workshops	☐	☐
Release time	☐	☐
Additional resources for their classroom	☐	☐
Positive evaluations	☐	☐
School or district recognition program	☐	☐
Free or discounted computers for their own use	☐	☐
Free software	☐	☐
Other, please specify	☐	☐

12 **What technology progress indicators does your district report to the local school boards and/or community?** (Mark all that apply.)

☐ *We do not report technology progress indicators*

☐ Student to computer ratio

☐ Number of classrooms wired

☐ Level of teacher technological fluency

☐ Level of student technological fluency

☐ Anecdotes about how students and teachers are using technology effectively

☐ Increases in motivation or engagement of students in the basic academic areas

☐ Student performance/achievement gains

☐ Use and effectiveness of distance learning

☐ Increased administrative efficiencies *(i.e., grading systems, attendance reporting, communicating with parents)*

☐ Increased teacher productivity

☐ Externally funded projects

☐ Community's use of technology

☐ Other, please specify

EXTERNAL SUPPORT

13 **Please indicate the level of support (i.e. encouragement, advocacy) for your technology plan by the following groups:**
(Check level of support for each item.)

	SCALE:	LITTLE OR NONE 1	2	3	4	VERY HIGH 5
Principals						
Teachers						
Teachers' association						
Parents						
School board						
Superintendent						
Students						
Business community						
Software/hardware companies						
Telecommunications companies						
Local post-secondary institutions						
Community groups						
Foundations						
State department of education						
County office of education						
Regional educational service agencies						

14 **From where has the district and its schools obtained the funds or in-kind goods and services for technology to date?**
(Mark all that apply.)

Governmental

- ☐ State funds, please specify .....
- ☐ State bonds
- ☐ Federal funds, please specify .....
- ☐ District categorical funds for technology
- ☐ District general funds
- ☐ Local bonds
- ☐ Regional educational service agencies
- ☐ Other, please specify .....

Non-Governmental

- ☐ Teacher's association
- ☐ Software/hardware companies
- ☐ Telecommunications companies
- ☐ Other businesses
- ☐ School fund-raising
- ☐ Parents
- ☐ Local post-secondary institutions
- ☐ Community partnerships
- ☐ Foundations
- ☐ Other, please specify .....

15 **To what extent do the following uses of technology occur in your district?** (Indicate extent for each item.)

	SCALE:	NEVER 1	2	3	4	FREQUENTLY 5
Community has access to technology in schools during non-school hours						
Students have access to technology during non-school hours						
School staff provides support to community members for their technology needs						
Students provide support to community members for their technology needs						
Parents and teachers can communicate via email						

16 **Do schools in your district have formal partnerships that focus on school technology with any of the following groups?**
(Mark all that apply.)

- ☐ Software/hardware companies
- ☐ Telecommunication companies
- ☐ Local non-technology business
- ☐ Community groups
- ☐ Other, please specify .....
- ☐ Foundations
- ☐ Professional organizations
- ☐ Local colleges/universities
- ☐ Regional educational service agencies

TECHNOLOGY CAPACITY

17 **Does your district have a formal technology plan?** (Check one.)

- ☐ Yes, we have a formal plan.
- ☐ No, we are in the process of developing a plan.
- ☐ No, we do not have a formal district technology plan.
  (Note: If you do not have a formal technology plan, please skip question 18 and answer questions 19-23 with your best estimates.)

18 **How many years are covered in your district technology plan?** _____ years

19 **Based upon your district technology plan, what do you think the total cost of implementing technology properly and fully in your district would be for the number of years noted in the previous questions?** (Do not reduce your estimate by the discount expected from the E-Rate.) $ _____

20 **Of these costs, how much do you expect to be reduced by the E-Rate?** $ _____

21 **What percent of your district technology plan has been fully funded to date?**
(Include the value of donated goods and services.) _____ %

22 **What percent of your district budget currently goes toward technology (hardware, software, infrastructure, technical support, training)?**
Percent of capital budget _____ %
Percent of operating budget _____ %

23 **In your district, what is the ratio of students to computers available for student use which are capable of accessing the Internet?**
(Note: These computers can be in classrooms, labs, library media centers or any other location with student access.)
# of students to each computer _____

24 **What percentage of schools in your district has the majority of its classrooms:** (Check percentage for each item.)

	SCALE:	0%	1-25%	26-50%	51-75%	MORE THAN 75%
Connected to a local area network (LAN)						
Connected to the Internet via the LAN						
Connected to the Internet via direct telephone line						

25 **When technology at schools in your district breaks down (i.e. computer freezes, printer jams, no connection to the Internet), how long does it typically take to fix the problem?** # _____ hours or # _____ days

26 **In general, how frequently do each of the following provide technical support or maintenance for technology in the schools in your district?** (Check frequency for each item.)

	NEVER	OCCASIONALLY	FREQUENTLY
Classroom teachers			
Library media teacher			
Other school staff hired specifically for those purposes *(including computer lab teachers, computer aids)*			
Other school staff with additional responsibilities			
District providers on contract or as needed			
Commercial providers on contract or as needed			
Students			
Regional educational service agencies			
Other, please specify			

27 **What percent of computers at schools in your district are not used?** (If zero, skip to question 29.)

SCALE:	0	1-10%	11-25%	26-50%	51-75%	OVER 75%

28 **Please indicate how important a factor each of the following is in explaining why these computers are not used.** (Check importance for each item.)

SCALE:	NOT IMPORTANT 1	2	3	4	VERY IMPORTANT 5
Teachers are not trained to use them					
Classrooms do not have the appropriate wiring					
No interest					
Too many other computers					
Outdated computers					
Computers require repair					
No appropriate software					
Need to revise curriculum					

29 **Approximately what percentage of schools in your district have directly benefited from Federal funds or discounts?** (Check percentage for each item.)

SCALE:	0	1-10%	11-25%	26-50%	51-75%	76-99%	100%
TLCF							
E-Rate							
Other, please specify							

30 **Please provide a description of your duties and responsibilities in the district:**

If you require additional space for your answer, please attach an extra sheet.

Survey of Technology in the Schools

Weighting Scheme for 1998 Data Collection

Number of schools in district	Unweighted
Number of students in district	Unweighted
Type of schools if other than public	n/a
Question 1	Weighted
Question 2	Weighted
Question 3	Unweighted
Question 4	Weighted
Question 5	Weighted
Question 6	Weighted
Question 7	Unweighted
Question 8	Unweighted
Question 9	Weighted
Question 10	Weighted
Question 11	Weighted
Question 12	Unweighted
Question 13	Weighted
Question 14	Weighted
Question 15	Weighted
Question 16	Weighted
Question 17	Unweighted
Question 18	Unweighted
Question 19	Unweighted
Question 20	Unweighted
Question 21	Unweighted
Question 22	Unweighted
Question 23	Weighted
Question 24	Weighted
Question 25	Weighted
Question 26	Weighted
Question 27	Weighted
Question 28	Weighted
Question 29	Unweighted